

WEATHER IN THE UNITED STATES

GENERAL CONDITIONS

The exceptional features of the month as a whole can be explained in terms of the distribution and movement of cyclonic and anticyclonic systems and the free-air temperatures. (See Aerological observation.) More or less stagnation of the former at times contributed to the heavy rainfall of the Missouri, middle Mississippi, and lower Ohio Valleys. The temperature was below normal in about one half of the country and above in the other half. (See Charts III and IV.)—A. J. H.

CYCLONES AND ANTICYCLONES

Fifteen Lows and eight HIGHS were plotted during May. The only general storm area of importance developed over the Great Basin on the 6th and died out over eastern Maine on the 11th. This storm reached its maximum intensity on the 8th and 9th, with a sea-level pressure of 28.78 inches at North Platte, Nebr., at 8 p. m. of the 8th. High-pressure areas were generally unimportant; but toward the end of the month the pressure was much above the normal over the Canadian interior, and this excess of pressure was moving southward over the North Central States at the close of the month.—W. P. Day.

THE WEATHER ELEMENTS

By P. C. DAY, in Charge of Division

PRESSURE AND WINDS

May, 1927, as a whole was in no important sense an unusual month; still widely separated sections had rather pronounced variations in certain features from the weather usually experienced in that month.

Among the important local items of unusual conditions appear the large number of severe storms that developed in the Plateau and Rocky Mountain regions; the unusually low barometric pressures attending these in some localities and the slow rate of movement eastward; the continued cool and wet weather over most northern districts; the great deficiency in precipitation over much of Florida and some other portions of the Southeast and in portions of the Great Plains from western Kansas southward, where the wheat crop was greatly injured; the persistent high winds in portions of Texas and some other southern localities; the excessive cloudiness over the Ohio and upper Mississippi Valleys, including near-by areas; and the unusually large number of local wind and hail storms over the southern Plains and thence northeast to the Great Lakes.

The month opened with general low-pressure over the Rocky Mountain and southwestern districts, which moved into the Great Plains and Mississippi Valley during the following two or three days, but without important precipitation. By the 6th low-pressure had again entered the Southwest and on the morning of the 7th it had developed considerable strength, though without important movement, and rain or snow had set in over the districts to the northward. During the following 24 hours the storm moved to eastern Colorado with a marked increase in strength, the sea-level barometric pressure falling below 29 inches at the center and was

attended by heavy snow to the northward. During the next 24 hours the storm moved slowly northeastward with undiminished intensity, heavy snow falling in the mountain districts, particularly in Wyoming, where during the 8th and 9th near-blizzard conditions prevailed, high winds and drifting snow causing the death of a number of persons and considerable loss to livestock, particularly lambs. From the 9th to 10th this storm moved with increased rapidity, but diminished intensity, to the upper Lakes and thence to the St. Lawrence Valley. Heavy snows occurred in connection with this storm over the middle and northern Rocky Mountains and near-by areas, and rainfall was widespread from the central and northern Plains eastward.

Considerable rain occurred in the central valleys and northeastern districts from the 13th to 17th as a moderate cyclone moved slowly eastward from North Dakota to New England, and some heavy rains occurred in eastern Texas and near-by areas on the 13th.

About the 17th to 19th slight cyclonic conditions overspread the central valleys and scattered rains fell in those areas and somewhat to the eastward, but no important storm development occurred.

By the 20th a well-defined storm had formed in western Colorado and during the following few days moved slowly eastward, reaching the middle Missouri Valley by the morning of the 23d, but without much precipitation save over districts to northward of the general center of the storm. During the following 24 hours low barometric centers had developed both north and south of the main storm center, which had rapidly dissipated, and by the following morning these had largely disappeared; but precipitation had covered most of the Mississippi and Ohio Valleys and near-by areas and during the following two days extended into and over most eastern districts.

During the latter part of the month storm conditions prevailed over the central Rocky Mountain and near-by areas and more or less precipitation occurred in those districts and to the northward, and on the 27th and 28th some heavy rains fell in the upper Mississippi and lower Ohio Valleys, and rain continued more or less general over the Northwest. The last few days had scattered precipitation in many portions of the country from the northern Rocky Mountains eastward and southeastward, but the rain areas were mainly small and the total falls light as a rule.

The mean sea-level pressure was highest, 30.10 to 30.15 inches, over the far Northwest, and it was above 30 inches over Florida and near-by areas. In these districts the averages were mainly above normal, but elsewhere they were less than normal and rather low on the whole over the interior and northeastern districts. Small insets on Charts I and II show the departures of the mean sea-level pressures from the normal for the month and the changes in pressure from April to May.

The month had a notably large number of severe local storms, nearly 50 having the characteristic features attending tornadoes, a number of which were distinctly severe. A total of nearly 250 lives were lost, almost 2,000 persons were injured, and property loss was estimated at more than \$10,000,000. Hailstorms also were frequent, and in several instances severe loss was sustained. Full statements as to the details of several of the more severe tornadoes appear elsewhere as separate items in this issue, and the complete list of all storms, with the usual items, appears in the table at the end of this section.

TEMPERATURE

May was without important short-time variations in temperature, and while a cold month in many sections yet no important damage by frost occurred in the great agricultural regions, though in some of the important fruit districts of the far Northwest and in the central Rocky Mountain sections the temperatures were sufficiently low at times to justify taking the usual protective measures to prevent injury.

The first 10 days were mainly warmer than normal from the southern Plains eastward to the Atlantic coast and northeastward to the Great Lakes and Middle Atlantic States, but that period was mainly cooler than normal over the Northeastern States and from the upper Mississippi Valley westward and southwestward to the Pacific coast.

The week ending May 17 was distinctly cool, on the whole, from the Great Plains eastward, but correspondingly warm over the remainder of the country.

The week ending May 24 was mainly warm over all parts of the country from the middle and southern Rocky Mountains eastward to the Atlantic coast, but distinctly cool over the Northwest and moderately cool over New England and the far Southwest. The last week of May continued warm over the Southern States from eastern New Mexico to the Atlantic coast, but it continued cool in all the far West and over the northern half of the country to the eastward.

The month as a whole averaged warmer than normal over all districts from southern and central California eastward to the Atlantic coast and it was colder than normal over the remaining districts. In portions of the South, particularly in Texas, it was the warmest May of record and some areas had temperatures above normal on nearly all days. In the northern districts, however, there were few days with temperatures above normal. In these districts, however, the low means were mainly due to cloudy weather. The means of the night temperatures were generally near the normal, but the day temperatures nearly everywhere averaged several degrees lower than the normal. Over much of Texas and locally in other portions of the South it was the warmest or nearly the warmest May of record.

The warmest periods of the month were on the 1st and 2d in the Dakotas, on the 7th in Texas, on the 9th and 10th from Ohio and West Virginia eastward to the coast, about the 14th to 17th from the Rocky Mountains westward and in the middle Plains, from the 20th to 22d from Tennessee northward to Canada, on the 24th in Virginia and North Carolina, and near the end of the month in the Gulf States. The highest temperature reported was 118° in southern California, but Texas had a maximum of 115° and Arizona 114°. Over most of the Central and Eastern States the temperature did not reach 100° on any day of the month.

The coolest periods were on the 1st and 2d from Illinois eastward to the Atlantic coast and over the Northeastern and far Northwestern States, about the 8th to 10th in the Great Plains, the 11th and 12th in the Lake region, on the 16th and 17th in most Gulf and South Atlantic States, and on the 29th in California, Oregon, and Nevada.

Temperatures as low as freezing occurred over most Central and Northern States and at the high elevations of the West. The lowest reported was 1° in Wyoming.

PRECIPITATION

Rains continued frequent and occasionally heavy, as was the case during the two preceding months, over

much of the Mississippi Valley region, and the total amounts for the month were above normal in all the States immediately west of the Mississippi River, in all those of the Ohio Valley, Great Lakes region and thence northeast to New England, and from the Dakotas westward to Oregon and Washington. In the Atlantic Coast States from New Jersey southward to Florida, over the Gulf States, except Louisiana and Arkansas, and from Nebraska south to Texas and thence west to the Pacific Coast the monthly precipitation was less than usually comes in May.

Precipitation was of almost daily occurrence in portions of the upper Missouri Valley, particularly in Montana, where the monthly totals were mainly the greatest for May and in some instances the greatest received in any month of record. On the other hand, in Florida the amounts were generally less than ever previously recorded in May, and as April had also been dry in many parts of the State the combined amounts for the two months at many points were less than in any other two-month period of record. The month was likewise very dry over the western portions of the Great Plains from western Kansas southward, including much of Texas, where the rainfall was the least of record for May, and much damage resulted to the wheat crop in that area.

SNOWFALL

Light snow was reported from a few points in New England and some occurred at the higher elevations of the Appalachian Mountains. Elsewhere east of the Great Plains there was little snowfall, except in the Lake Superior region and thence westward to North Dakota, where traces were reported quite generally.

In the Rocky Mountain region from northern New Mexico to Montana, including the western parts of the Dakotas and Nebraska, important amounts of snow occurred on several dates, but principally from the 7th to 9th, when heavy falls occurred at many points, particularly from Colorado northward. This period of snowfall was attended locally by high winds, much drifting, and general wintry conditions.

Considerable snow fell over much of the same area from the 18th to 22d and again near the end of the month. Total falls of nearly 5 feet occurred at some high elevations in Colorado, and similar falls occurred locally in Wyoming and Montana, while depths of from 1 to 2 feet occurred in the extreme western portions of the Dakotas. In the other Mountain States of the West snowfall was mainly light, but the prospects continued favorable for an ample supply of water for the coming summer in most districts.

RELATIVE HUMIDITY

The percentages of relative humidity were nearly everywhere greater than normal in northern districts east of the Continental Divide, notably in the Missouri and upper Mississippi Valleys, Davenport, Iowa, reporting the highest average relative humidity ever noted in May. The central valleys and some Gulf districts had averages somewhat greater than normal, also parts of Idaho, Oregon, and adjacent areas.

Deficiencies were noted in most southern districts, especially in southern California, the southern Rocky Mountain and Plains regions, the southern Appalachians and the South Atlantic States; while Los Angeles, Calif., and Roswell, N. Mex., had the lowest May averages of local record. Some parts of Washington, the interior portions of the east Gulf States, and most coast districts of the Middle Atlantic and southern New England States had slight deficiencies.